

The Product Concentration of Large Corporations

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IT is a well known fact that a comparatively few large corporations control a substantial part of the national corporate wealth. But little analytical material has been available to indicate the role played by these same corporations in the output of the individual products manufactured by them. Although many basic and critical business decisions are made in terms of products, the information available for the study of these leading corporations has been in other terms. Many obvious questions have gone unanswered. How many different products do they manufacture? What is the significance of each product in the company total? How important in the national market is a company's output of each of its products?

As a part of the report on "The Structure of Industry,"¹ which was prepared by the Department of Commerce in cooperation with the Temporary National Economic Committee, a new measure of concentration in product terms was developed which throws light on how big corporations look productwise. For each of the products of the largest manufacturing corporations answers are supplied to two questions, how important is the value output of each product to the individual company, and how important is each company's output of each product in the total domestic production of that product?

The analysis which follows is based on product² data for the largest 50 manufacturing companies reporting in the Census of Manufactures for 1937. The companies were selected on the basis of their value of products; that is, the concerns reporting in the Census of Manufactures for 1937 were arrayed in terms of the total value of their products and the largest 50 selected.

¹ "The Structure of Industry," Monograph No. 27 of the TNEC series, prepared under the direction of Willard L. Thorp and Walter F. Crowder. The newly developed materials which form the basis of this article were taken from Pt. VI, "The Product Structures of Large Corporations," of the above-named report. The monograph is available from the Superintendent of Documents, Washington, D. C., \$1.

² The thousands of physical commodities produced by our industries and listed separately by the Census of Manufactures as products differ among themselves with respect to physical characteristics, although frequently the differences are very slight. Physical differences between two census products are in some cases, indeed, so slight as to make it doubtful that the products are significantly different in an economic sense, one being so easily substituted for the other as to render them functionally homogeneous for all important valuation decisions. It is impossible to say just when a gap in substitutability exists sufficient to warrant saying that two different physical things are economically different products. The Census of Manufactures treats 100-percent-wool blankets as a different product from 90-percent-wool blankets. Obviously the functional economic difference here is not of the same order as that between either one of these blanket products and a cast-iron radiator. In fact, it may not be so great as the difference between two identical blankets sold under two different brand names by means of two different advertising programs. In general, however, one is warranted in assuming that census product differentiations do reflect in varying degrees significant economic functional differences since they represent in large measure the cumulative result of suggestions and requests made through the years by manufacturers and their trade associations.

Since the Bureau of the Census is prohibited by Federal statute from revealing the confidential data supplied by reporting companies, the data for individual companies and products are presented under symbols. While this procedure undoubtedly reduces the news value of the data, it still makes possible the presentation of significant facts about the product structures of large American manufacturing companies. Indeed, comparisons of these corporations in abstract product symbols bring out structural similarities and differences which might not be so apparent if attention were directed to the concrete nature of the several product structures.

Each of these 50 companies is a central office in the meaning used by the Census; that is, each concern operates more than one establishment or plant and the production data from all are brought together and reported from one central office. These may be holding companies in which the subsidiaries operate on an independent or semi-independent basis. In such cases, the operating data of the subsidiaries are keyed to those of the top holding company and the total manufacturing operations are reported for the whole ownership interest. The control over establishments is limited to those which are owned outright or those of subsidiary companies in cases where the majority of the voting stock is controlled. There are undoubtedly some cases of majority voting stock control not known to the Census although the understatement is probably quite small. Moreover, many situations obviously exist in which less than majority voting stock is sufficient to give effective working control to the compact minority owner. Interlocking directorates, common banking interests, well-organized trade associations, and a variety of agreements which are functionally of vast importance in a study of concentration of control are not measured in the data presented here.

The Significance and Extent of the Operations of the Largest 50 Companies

Before presenting the data on the individual product structures of the largest 50 manufacturing corporations, it is interesting to appraise the significance of these giant corporations in over-all terms.

The Largest 50 Corporations Played an Important Role in the Economy.

The role played by these 50 large companies in all manufacturing may be reviewed and their significance

appraised by an inspection of the material presented in table 1. In order that the position held by the "largest 50" among other large corporations may be examined, similar data measuring the significance of the largest 100 and the largest 200 corporations are also presented. The measures of over-all bigness of a relatively few large corporations as presented in this table make possible a quantitative evaluation of their significance in a manner which has not heretofore been possible.

Although the largest 50 corporations controlled only 2 percent of all establishments in manufacturing, they employed 16 percent of all wage earners, paid 21 percent of the wage bill, and their aggregate output was 28 percent of the total value of products in all manufacturing in 1937. These 50 companies, of course, were not active in the production of all the different manufactured products. If the comparison is limited to the products actually manufactured by them, their value output made up 38 percent of this adjusted total.

By comparison, the largest 200 corporations controlled 3.2 percent of all manufacturing establishments, employed 26.3 percent of all wage earners in manufacturing, paid 32.8 percent of the wage bill, and accounted for 41.0 percent of the total value of all manufactured products.

Among these 50 giant corporations there was a wide range in the degree of bigness. The largest of the 50 had a value output approximately 20 times that of the 50th company in the array. Some idea of the relative size of these 50 as compared with the largest 100 and 200 corporations is afforded by the fact that the total value output of the largest corporation was approximately 40 times that of the 100th company, and 80 times that of the 200th company.

The Operations of the Largest 50 Companies Were Concentrated in a Few General Lines.

The activities of these 50 manufacturing companies tended to be much more heavily concentrated in certain general lines of activity or in certain census industry groups than in others. On the basis of their predominant activity (measured by value of products), 10 of

the 50 companies were classified in the iron and steel group, 7 in the food and kindred products group, 7 in the products of petroleum and coal group, 5 in the transportation group, and 4 each in the chemicals group, the nonferrous metals group, and the machinery group. This concentration in certain industry groups points to the conclusion that something in the nature of the products or in the technology under which they were produced probably was conducive to mass production. It also suggests the possibility that these giant corporations found some of their competition within the ranks of the 50 companies themselves.

These 50 companies taken together manufactured 2,043 distinct census products. Obviously, several of the companies may have participated in the manufacture of any one of these products. Actually, 13 of the 50 companies were active in the manufacture of four products. By far the greater proportion of the products, however, had only one among the 50 companies active in their production. Specifically, about half of the products were produced by only one among the 50 companies, 25 percent of the products were produced by two companies, a little more than 10 percent by three companies, and the remaining products by four companies or more.

The operations of these 50 companies were spread over many industries, but the extent of their activities varied widely. One of the companies actually manufactured products which were classified in 39 census industries, while, at the other extreme, one company operated in only two industries. For a more typical measure, 27 of the 50 companies manufactured products classified in 10 industries or more.

The distribution of the 50 companies according to the number of establishments or plants operated per company gives further evidence of the wide range in the extent of their operations. Three of the companies operated only 7 establishments each, while one company operated 497 establishments. Almost half of the companies operated 25 or fewer establishments and only 16 companies operated more than 50 establishments.

Table 1.—Importance of the Largest 50, the Largest 100, and the Largest 200 Manufacturing Companies, 1937

Measures of importance	All manufacturing	Largest 50 companies		Largest 100 companies		Largest 200 companies	
		Amount	Percent of all manufacturing	Amount	Percent of all manufacturing	Amount	Percent of all manufacturing
Number of concerns.....	1,140,720	50	0.03	100	8.1	200	0.1
Number of establishments.....	190,794	2,300	1.7	4,067	2.4	5,411	3.2
Wage earners:							
Average number for the year.....	8,590,281	1,300,503	15.2	1,780,561	24.8	2,255,736	26.3
Wages paid (thousands of dollars).....	10,112,883	2,108,038	21.3	2,885,482	28.0	3,318,147	32.8
Salaries paid:							
Average number for the year.....	1,317,171	780,251	18.9	281,912	19.3	300,474	24.7
Salaries paid (thousands of dollars).....	2,718,885	425,830	15.7	520,861	15.4	587,508	24.9
Value of products (thousands of dollars).....	60,712,373	16,885,134	27.7	20,345,073	34.3	34,688,973	41.0
Cost of materials, fuel, energy, etc. (thousands of dollars).....	24,630,333	11,718,824	23.0	14,502,591	40.2	18,667,150	48.6
Value added by manufacture (thousands of dollars).....	25,173,530	5,085,408	20.2	0,842,782	28.0	3,130,514	32.3

This figure represents the difference between the total number of manufacturing establishments and the number of establishments operated by central-office companies plus the number of central-office companies. There were 5,825 central-office concerns active in manufacturing in 1937 and these multi-plant companies operated 35,000 establishments.

The number of products manufactured by each of the 50 companies also varied within a wide range. One of the companies produced only 6 products, while, at the other extreme, one company manufactured 302 separate products. Between these limits, the companies tended to cluster at the lower end of the range. Approximately three-fourths of the companies manufactured fewer than 100 products.

In general, there was a tendency for the concerns to organize their activity in such a manner that only a few products were manufactured in each particular establishment—actually, there were five or less products manufactured in 75 percent of the establishments and almost 90 percent of the establishments produced fewer than 11 products.

The Importance to the Individual Company of Each Product Manufactured

The analysis of the individual product structures of these 50 large manufacturing corporations is based on two measures of the significance of each product. First, the importance of an individual product to each company is measured in terms of the contribution that product made to the total value of the company's output; and, second, the importance of each company's

United States value of the product. In this section, the analysis of the product structures of the 50 companies is based on the data derived from the first measure.

Majority of Products Made Small Contribution to Total Company Output.

These 50 companies manufactured a total of 4,085 products (table 2). This does not mean that the companies manufactured 4,085 distinct and separate products. It only represents a cumulation of the number of products manufactured by each company.¹ Of this total, there were 1,472 products, or 36 percent, which accounted individually for less than 0.1 percent of the total output of each company. Furthermore, there were 1,929 products which accounted for 0.1–1.0 percent of any company's total. In other words, 83.3 percent of all the products manufactured by these 50 companies accounted individually for 1 percent or less of a company's total output and 94.7 percent of the total number of products manufactured accounted individually for 5 percent or less of any company's output.

¹ Products in this sense may be referred to as instances of production. Since the same census product may be made by more than one company, this amount (4,085) is larger than the number of different census products made by the 50 companies. If all duplications are removed, it is found that these companies, in total, made 2,812 different census products. For purposes of analyzing the product structures of individual companies every product must be included regardless of whether or not the same product was made by one or more other companies among the 50.

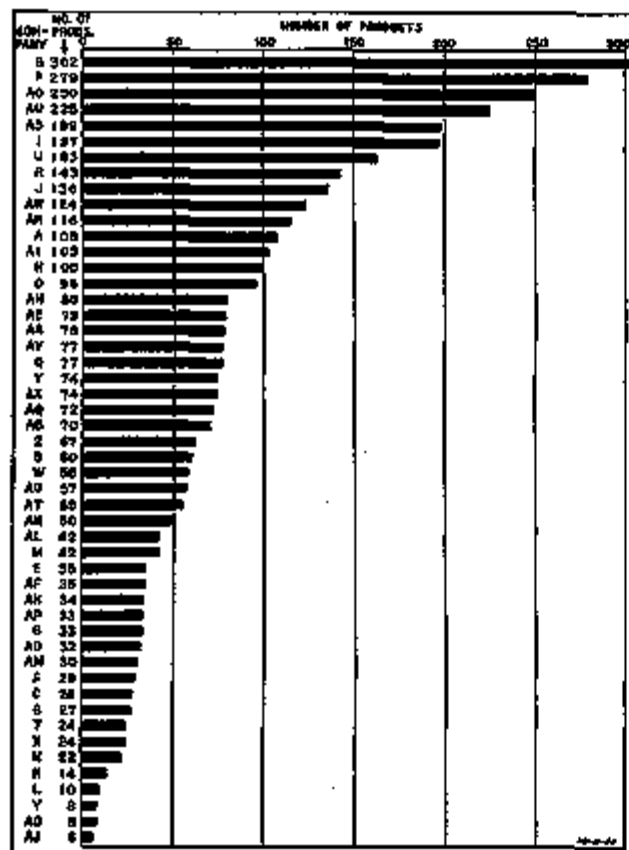


Figure 8.—Number of Products Manufactured by Each of the Largest Fifty Manufacturing Companies, 1937 (U. S. Department of Commerce).

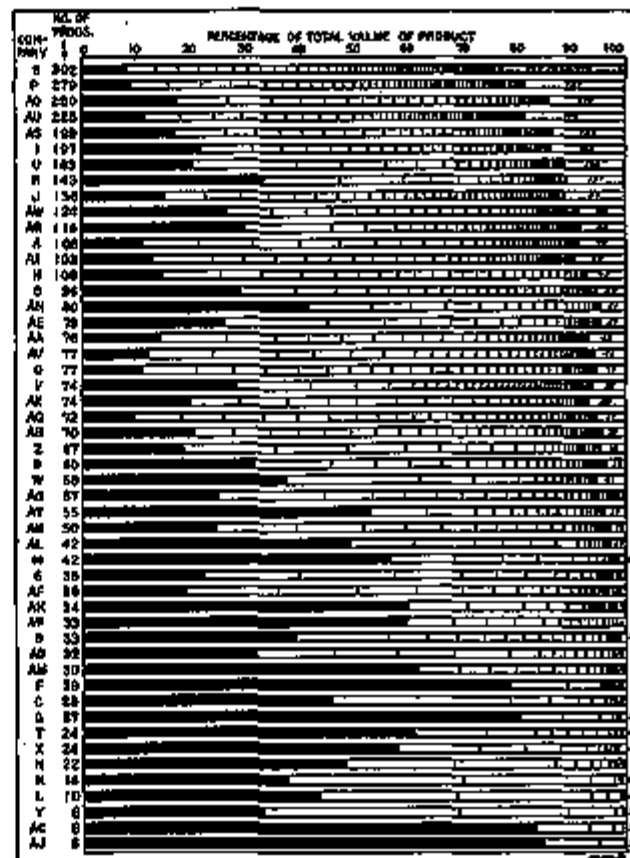


Figure 9.—Percentage Contribution of Individual Products to the Total Value of Products of Each of the Largest Fifty Manufacturing Companies, 1937 (U. S. Department of Commerce).

NOTE.—The number of products grouped in the right-hand portion of each bar accounted individually for less than one-half of one percent of the company's total value of products.

output of an individual product is measured in terms of the proportion which that output was of the total

There were only 4 products from the whole list which individually accounted for more than 75 percent of a single company's value output.

Although the products which separately accounted for a small proportion of each company's total output represented the majority of the number of each company's products, they made up, even in the aggregate, only a small percentage of the total value of products of the individual companies. The relative variation in the number of products manufactured per company is shown in figure 8, while the proportion of the total value output for each company accounted for by the major product is shown graphically in figure 9. By inspecting these charts together a visual comparison of the percentage contribution of each product to the company total and the absolute number of products per company may be obtained. From figure 9 the relative significance of the aggregate values of the minor products discussed in the preceding paragraph may be seen. Only in company "S," which produced the largest number of products, 302, did the aggregate value of minor products amount to more than 20 percent of the company's total value of products.⁴ For the majority of the companies, the aggregate value of these products was less than 5 percent of the company's total.

Table 2.—Distribution of All Products Manufactured by the Largest 50 Companies According to the Proportion of the Company's Total Output Accounted for by Each Product, 1937

Percent of company's total value of products	Number of products	Percent of products	Cumulative percent of products	Number of companies represented
Total.....	4,085	100.0
Less than 0.1.....	2,472	60.0	36.0	49
0.1 to 1.0.....	1,929	47.8	38.3	36
1.1 to 2.0.....	242	6.0	35.2	48
2.1 to 3.0.....	118	2.9	32.0	41
3.1 to 4.0.....	66	1.6	30.0	20
4.1 to 5.0.....	46	1.1	28.7	30
5.1 to 6.0.....	2,995	68.7	24.7	50
6.1 to 10.0.....	199	5.0	27.4	45
10.1 to 15.0.....	40	1.0	26.4	26
15.1 to 20.0.....	17	.4	25.0	13
20.1 to 25.0.....	10	.2	23.2	10
25.1 to 30.0.....	6	.1	22.3	6
30.1 to 35.0.....	6	.1	21.4	4
35.1 to 40.0.....	4	.1	20.5	4
40.1 to 45.0.....	2	.1	19.6	2
45.1 to 50.0.....	2	.1	18.7	2
50.1 to 55.0.....	1	(^a)	17.7	1
55.1 to 60.0.....	4	.1	16.8	4
60.1 to 65.0.....	2	.1	15.0	2
65.1 to 70.0.....	0	.0	13.0	0
70.1 to 75.0.....	0	.0	10.0	0
75.1 to 80.0.....	1	(^a)	9.0	1
80.1 to 85.0.....	3	.1	100.0	3

^a Less than 1/16 of 1 percent.

Output of a Few Leading Products Made Up Large Portion of Each Company's Production.

Turning now to an examination of the contribution of the major products of each company, we see the tendency for a few products to account for a large proportion of the total value of each company's output. The length of the solid horizontal bars in figure 9 indicates

⁴ Throughout the text and figures, the identity of each company is indicated by the same code letter. The assignment of letters was not related in any way to a particular company characteristic.

the percentage contribution of the most important product (valuewise) to each company and the subsequent sections of each bar indicate the contribution of each succeeding product in order of importance. At one extreme, the most important product of company "S" accounted for 8.4 percent of the total output of that company, while, at the other extreme, the most important product of company "AJ" accounted for 84.6 percent of the total value output of that company.

Between these extremes there was considerable variation among the individual companies, but, in general, a rather broad inverse relation existed between the number of products manufactured by a company and the contribution of the leading product to the company's total value output.

To summarize the material presented in this section, the largest 50 manufacturing companies were engaged in the production of many products. The majority of these products, taken individually, made relatively small contributions percentagewise to the total value of products of the companies. On the other hand, the major portion of the total value of products of these companies was accounted for by the value contribution of relatively few products. In some of the companies these major products were undoubtedly related in the sense that they were joint products, by-products, or successive products in an integrated organization, but in the product structures of other companies, there was probably no functional relation among the major products.

Importance of Each Company's Output of an Individual Product in the Total Domestic Production of That Product

In describing the product structures of these 50 companies in the preceding section, it was seen that the total value output of each company resulted from the production of many products. In this section, the output of each product of each company is measured against the total United States output of that product. The data presented will help to clarify the relationship between bigness and concentration in the control of the production of individual products.

The product data are computed on a national basis, and the output of a given product by an individual company represents the aggregate production of that product in the various plants operated by the concern. To the extent the market for any particular product was not national in scope the measure of concentration of control developed here understates the true situation. A market is defined geographically by the area over which sellers compete and, when this area is reduced by transportation costs or difficulties of communication among potential sellers and buyers, the number of competitors is reduced and the degree of concentration correspondingly increased. In other words, the bigness

or smallness of a concern for price analysis must be measured in terms of the size of the markets for its separate products. The local gristmill of frontier days, although extremely small in terms of the volume of its output, presumably was much larger relative to the size of its market than the big flour milling concern of today, selling on a national basis. It is believed, however, that this limitation is not particularly important. For these large corporations to attain their size, the major products manufactured by them must ipso facto be products for which there is an enormous mass demand derived from a large part of the population.

The Concentration Percentages* of Products Varied Widely.

The data which show the range of the importance in the United States of the products manufactured by these 50 companies cover wide differences in the actual proportions of the national totals accounted for by each company. Forty-three percent of the number of products were items in which the companies individually manufactured 5 percent or less of the total value of each product. The distribution of products over the entire range of concentration may be obtained from the data presented in table 3. Although not shown in the table, the concentration percentages for 157 of the products were less than 0.1 percent. If each of the largest 50 manufacturing companies is examined separately, it is seen, then, that a large percentage of the number of products were items in which the companies were small producers.

Table 3.—Distribution of the Number and Value of Products Manufactured by the Largest 50 Companies by Concentration Classes, 1937

Concentration class (percent of United States total)	Number of products			Value of products			Number of companies represented
	Total	Per cent	Cumulative percent	Total (thousands of dollars)	Per cent	Cumulative percent	
Total.....	4,065	100.0	10,875,135	100.0
Less than 0.1.....	1,758	43.0	43.0	1,062,871	9.8	8.3	48
0.1 to 0.5.....	682	16.8	59.8	2,252,411	20.8	18.1	48
0.5 to 1.0.....	363	8.9	68.7	1,419,781	13.0	28.1	47
1.0 to 2.5.....	271	6.6	75.3	1,759,448	16.2	38.8	45
2.5 to 5.0.....	224	5.5	80.8	2,173,660	20.0	51.7	40
5.0 to 10.0.....	168	4.1	84.9	1,789,431	16.4	62.8	37
10.0 to 25.0.....	121	3.0	87.9	1,080,319	9.9	68.7	25
25.0 to 50.0.....	80	2.2	90.1	1,227,691	11.3	79.9	24
50.0 to 75.0.....	58	1.4	91.5	905,016	8.3	81.7	20
75.0 to 90.0.....	39	1.0	92.5	504,623	4.6	84.7	15
90.0 to 95.0.....	46	1.1	93.6	348,668	3.2	86.8	16
95.0 to 99.0.....	38	0.9	94.5	481,903	4.4	89.7	15
99.0 to 100.0.....	13	0.3	94.8	676,823	6.2	90.7	15
.....	30	0.7	95.5	172,500	1.6	94.7	15
.....	17	0.4	95.9	53,663	0.5	95.0	12
.....	32	0.8	96.7	444,788	4.1	97.8	10
.....	18	0.4	97.1	30,128	0.3	98.0	9
.....	26	0.6	97.7	286,374	2.6	99.3	16
.....	17	0.4	98.1	37,307	0.3	99.4	11
.....	59	1.4	100.0	80,704	0.8	100.0	28

* For ease in analysis, the various concentration percentages have been grouped into 5-percent intervals, and in this and in the following table, these groupings are called concentration classes.

Forty-nine of the fifty companies manufactured at least one product in which the output of the company was less than 5.1 percent of the United States total. For the remaining company, the least important product

* The relation between a company's output of a product and the total United States production of that product has been expressed in percentage form and, throughout the remaining portion of the analysis, this ratio is referred to as the concentration percentage of a product.

accounted for 9.3 percent of the total value for that product. On the other hand, the output of products with the highest concentration ranged from 12.9 percent of the domestic total in the case of one company to 100 percent of the total in the case of 13 other companies.

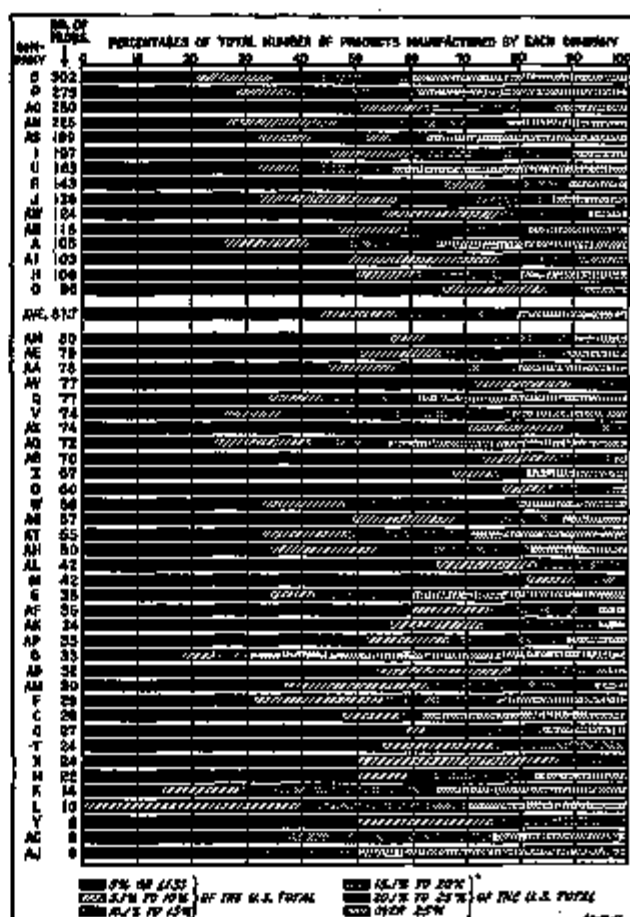


Figure 10.—Percentage Distribution of the Number of Products of Each of the Largest Fifty Manufacturing Companies by United States Concentration Classes, 1937 (U. S. Department of Commerce).

In other words, these 13 companies each produced at least one product in which they accounted for the entire output. It is interesting to note that 7 companies manufactured no product in which their output made up more than 25 percent of the total domestic production.

In the upper concentration range, there were 59 products for which the output of individual companies accounted for 95 to 100 percent of the total domestic output, and 20 of the 50 companies participated in their production. For about one-fifth of the total number of products, the output of an individual company accounted for more than 25 percent of the United States total.

The relative number of products falling in the various concentration percentage classes for each company is summarized graphically in figure 10. From this chart it will be seen that the distributions among the companies do not vary significantly with the number of products manufactured by each. For example, 21 percent of the

less than 0.1 percent of the company's total value output and 28 of the products were in the "0.1-5.0" percent class.

Certain general observations may be drawn from the material presented in this table regarding the relation between products important to each company and the significance of each company's output of these products in the United States total. If we may say that a company's output of a particular product represents an "important" part of the United States total production of that item when the company's output makes up 10 percent or more of the United States total (this percentage is, of course, quite arbitrary and subject to obvious limitations), then about 40 percent of the products were items in which the individual company's output made up an important part of the United States total. Of these "important" products, about 90 percent were items which individually made up 5 percent or less of the company's total output and may thus, in a sense, be classed as "unimportant" to the companies.

On this same basis, it may be said that, for 60 percent of the individual products, a single company's output was relatively "unimportant" in the total domestic production and half of these products were items which individually contributed less than 0.1 percent to the total value of the company's output.

How important in the domestic production picture is each company's output of its most important product? The value output of the most important product of one of the companies accounted for only 3.1 percent of the total production of that product. At the other extreme, the value output of the most important product of each of 3 companies made up 75 percent or more of the total domestic production of these 3 products. For 29 of the 50 companies, however, the value output of the leading product of each company accounted for 25 percent or less of the total production of these products.

General Conclusions

This investigation of the product structures of large corporations demonstrates with better evidence than has been heretofore available that corporate bigness and concentration in the production of individual products are not always the same thing. An independent tabulation of the assets of the largest 50 corporations in 1937, as reported in Moody's, reveals that these corporations had approximately one-third of the total assets of all manufacturing corporations as reported in the *Statistics of Income*. Further, these corporations accounted for approximately one-half of all taxable income in manufacturing and they accounted for about 28 percent of the total value of products in the manufacturing segment of the economy. These are the over-all measures of corporate size.

In appraising the role played by these large corporations in the economy, data must be developed which will aid in answering different types of questions. For

some business decisions, the area of applicability is company-wide and for these decisions the over-all company measures of size are relevant. For example, when a company makes a decision to adopt a certain labor policy or a decision to extend plant capacity, the concern often operates as a unit and its over-all size is one factor of considerable weight. For other types of decisions, however, in which only a part of the concern's operations is affected, measures of a different type are indicated. For example, when the decisions relate to the pricing policies to be followed for an individual product, the most significant factor is not the over-all size of the corporation but the control which the corporation maintains over the output of that individual product. Such data will throw light on the extent of a company's potential control over production in the areas where critical price decisions are made, namely, in the markets for individual products.

From the data developed in the Commerce study of The Structure of Industry, which has been briefly summarized here, we see that, in terms of individual products manufactured by them, there is an extremely wide range in the degree of control over production maintained by these big corporations individually. For the great majority of the products manufactured by them the individual company's control of the tangible sort measured here is very small. Many of these items are undoubtedly the result of integration in various forms in the manufacturing process whereby by-products, supplementary, auxiliary, and complementary products are produced as a part of the activity of one concern. For the relatively fewer products numerically the output of these companies individually makes up an important part of the domestic production, and the products are generally the more important items to the companies themselves.

All sorts of conditions of control exist and the individual product structures of each of the largest 50 corporations are strikingly different. Each product and each company is unique. All these corporations are big in terms of over-all measures, but their control over the individual products manufactured by them varies widely.

The general picture of concentration in production which is gained from the use of this new measure of product concentration cannot but impress one with the extreme complexity of the whole problem of concentration. Sweeping statements which lump all big corporations together as if they were identical in structure or over-all treatment from the policy angle cannot contribute much toward solving the problems associated with concentration or the problems associated with the big corporations. This is certainly one of the most striking conclusions, though a negative one, which may be drawn from the data supplied in the Commerce study. In all these matters involving price decision, the individualness of each case would seem to indicate the wisdom of dealing with each company or, for that matter, with each product on an individual basis.